Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1.   (Currently Amended) A system for dynamically configuring a virtual volume associated with a host system, comprising:

a set of storage devices, each of which includes physical block addresses for storing data associated with the virtual volume; and

a network switch system connecting the host system and the set of storage devices, and including:

a set of storage processors ~~each~~ maintaining virtual volume objects comprising first tier objects reflecting a relationship between the physical block addresses and one or more logical partitions of virtual volume data, and second tier objects reflecting a logical configuration of the virtual volume, <u>wherein the second tier objects reflect connections between a processor and a host system and the first tier objects reflect connections between a processor and a storage device storing virtual volume data,</u> wherein,

the network switch system uses the ~~virtual volume~~<u>first and second tier</u> objects to dynamically update the virtual volume during runtime of the network switch system, and

the first tier objects have logical connections to both local second tier objects associated with a shared storage processor and to remote second tier objects associated with at least another storage processor.

2.   (Original) The system of claim 1, wherein the network switch system dynamically updates the virtual volume based on a host system request.

3.   (Original) The system of claim 1, wherein the network switch system dynamically updates the virtual volume by at least one of adding a virtual volume object to a storage processor, removing a virtual volume object from a storage processor, and moving a virtual volume object from one storage processor to another storage processor.

4.   (Canceled)

5.   (Original) The system of claim 1, wherein the network switch system includes a Virtualization Block (VB) component that, based on a host system request, restructures a logical tree reflecting relationships between the second tier and first tier objects of the virtual volume.

6.   (Currently Amended) The system of claim 5, wherein the network switch system further includes a Virtualization Coherency Manager (VCM) that assigns the first tier objects to selective ones of the storage processor and the second tier objects to selective ones of the ~~second tier~~ storage processors based on the restructured logical tree.

7.   (Canceled)

8.   (Canceled)

9.   (Original) The system of claim 5, wherein when the host system request requires the VB component to add a new first tier object to a target storage processor maintaining a second tier object, the VB component configures the second tier object to include a Local Reference Node (LRN) that references the new first tier object.

10.   (Original) The system of claim 5, wherein when the host system request requires the VB component to add to a target storage processor a new first tier object that is logically related to a second tier object maintained in a different storage processor, the VB component configures the second tier object to include a Remote Reference Node (RRN) that references the new first tier object.

11.   (Original) The system of claim 6, wherein when the host system request requires the VB component to remove an existing second tier object tree from a target storage processor, the VCM deletes all second tier objects in the second tier tree before deleting any first tier objects that are solely referenced by the removed second tier object tree.

12.   (Original) The system of claim 11, wherein the target storage processor maintains an existing first tier object referenced by the existing second tier object tree and by a remote second tier object maintained by a remote storage processor, and wherein the VCM maintains the existing first tier object when deleting the existing second tier object.

13.   (Original) The system of claim 6, wherein when the host system request requires the VB component to remove an existing first tier object from a target storage processor, the VCM deletes all references to the existing first tier object from any second

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tier objects.

14-18. (Canceled)

19.   (Original) The system of claim 2, wherein the network switch system dynamically updates the virtual volume by collecting state information from the storage processor reflecting a current view of the virtual volume and reconfiguring a logical tree reflecting a logical relationship between the virtual volume objects based on the state information and the host system request.

20.   (Original) The system of claim 19, wherein the current view of the virtual volume includes information reflecting which storage processors maintain first tier objects and which storage processors maintain second tier objects.

21.   (Original) The system of claim 1, wherein each storage processor includes a virtualization state manager (VSM) that is configured to manage a local version of the virtual volume.

22.   (Original) The system of claim 22, wherein each storage processor VSM is configured to manage any of the virtual volume objects maintained by the respective storage processor.

23.   (Original) The system of claim 21, wherein a single storage processor includes a Master VSM (MVSM) that is in an active state.

24.   (Original) The system of claim 23, wherein the MVSM is configured to interact with the VSMs of the other storage processor to build a current system image of the virtual volume.

25.   (Original) The system of claim 24, wherein the current system image of the virtual volume includes information reflecting which storage processors are connected to selective ones of the storage devices and which storage processors are connected to the host system.

26.   (Original) The system of claim 23, wherein the network switch system designates the single storage processor as a Master Virtualization Storage Processor (MVSP) by activating the MVSM in the designated MVSP.

27.   (Original) The system of claim 26, wherein the MVSP is configured to interface with a Virtualization State Manager database (VSMDB) stored in the set of storage devices to build the system image of the virtual volume.

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28.   (Original) The system of claim 2, wherein the network switch system includes a Virtualization Coherency Manager (VCM) that updates virtual volume assignments to the storage processors based on the host system request.

29.   (Original) The system of claim 28, wherein the network switch system includes a Virtualization Block Manager (VB) that creates the first and second tier objects based on state information sent by a selected one of the first tier storage processors.

30 – 60. (Cancelled)

61.   (New) A system for dynamically configuring a virtual volume associated with a host system, comprising:

a set of storage devices, each of which includes physical block addresses for storing data associated with the virtual volume; and

a network switch system connecting the host system and the set of storage devices, and including:

a set of storage processors maintaining virtual volume objects comprising first tier objects and second tier objects, wherein the first and second tier objects are each associated with different types of volume management processes, wherein the second tier objects reflect connections between a processor and a host system and the first tier objects reflect connections between a processor and a storage device storing virtual volume data, wherein the network switch system uses the virtual volume objects to dynamically update the virtual volume during runtime of the network switch system; and

a Virtualization Block (VB) component that, based on a host system request, restructures a logical tree reflecting relationships between the second tier and first tier objects of the virtual volume, wherein when the host system request requires the VB component to add a new second tier object to a target storage processor that is logically related to a first tier object, the VB component configures the new second tier object to include a reference node that references the first tier object.

62.   (New) The system of claim 61, wherein the target storage processor maintains the first tier object, and wherein the reference node comprises a Local Reference Node (LRN).

63.   (New) The system of claim 61, wherein the first tier object is maintained in a different storage processor, and wherein the reference node comprises a Remote Reference Node (RRN).

64.   (New) A system for dynamically configuring a virtual volume associated with a host system, comprising:

a set of storage devices, each of which includes physical block addresses for storing data associated with the virtual volume; and

a network switch system connecting the host system and the set of storage devices, and including:

a set of storage processors maintaining virtual volume objects comprising first tier objects and second tier objects, wherein the first and second tier objects are each associated with different types of volume management processes, wherein the second tier objects reflect connections between a processor and a host system and the first tier objects reflect connections between a processor and a storage device storing virtual volume data, wherein the network switch system uses the virtual volume objects to dynamically update the virtual volume during runtime of the network switch system;

a Virtualization Block (VB) component that, based on a host system request, restructures a logical tree reflecting relationships between the second tier and first tier objects of the virtual volume; and

a Virtualization Coherency Manager (VCM) that assigns the first tier objects to selective ones of the storage processor and the second tier objects to selective ones of the second tier storage processors based on the restructured logical tree, wherein when the host system request requires the VB component to move an existing first tier object from a first storage processor to a second processor having a remote reference to the existing first tier object, the VCM sends a new second tier object tree to the first and second storage processors that removes any references to the existing first tier object.

65.   (New) The system of claim 64, wherein the VCM sends a new first tier object to the second storage processor that deletes the remote reference to the existing first tier object from the second storage processor.

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66.   (New) The system of claim 65, wherein the VCM sends a copy of the existing first tier object to the second processor following deletion of the remote reference.

67.   (New) The system of claim 66, wherein the VCM sends a new second tier object tree to the second storage processor having a new local reference to the copy of the existing first tier object.

68.   (New) The system of claim 67, wherein the VCM sends the new second tier object tree to a third storage processor with a remote reference to the copy of the existing first tier object sent to the second storage processor.